

Do Now 10-9 (gravitational)

Can the potential energy of an object be negative?

(Yes)

Can the kinetic energy of an object be negative?

(No)

Why or why not?

$$KE = \frac{1}{2} m v^2$$

$$PE = m g h$$

$$0 \quad h=0$$

$$K = \frac{1}{2} m v^2$$

$$v^2 = \frac{1470}{254}$$

$$v = \sqrt{\frac{1470}{25}}$$

$$v = 7.67 \frac{m}{s}$$

$$g = 9.8 \frac{m}{s^2}$$

$$v < 0$$

$$v^2 > 0$$

Pg 179 Conservation of energy

$$E_o = E_f$$

$$E_{\text{initial}} = E_{\text{final}}$$

$$KE_o + PE_o = KE_f + PE_f$$

Pg 181 $V_f = ?$

$$V_o = 0$$

$$\frac{1}{2} V_f^2 = \frac{735}{m}$$

$$V^2 = \left(\frac{735}{m}\right)^2$$
$$V^2 = \frac{1470}{25}$$

Goal

Learn & apply the Conservation of energy

Notes on Conservation of energy

Classwork

Pg 152 # 1-5

$$KE_o = 0$$

$$PE_o = mgh$$

$$= (25 \text{ kg})(9.8 \text{ m/s}^2)(3 \text{ m})$$

$$735 \text{ J} = E_o$$

$$PE_f = 0 \quad h_f = 0$$

$$KE_f = 735 \text{ J} = \frac{1}{2} m V_f^2$$

$$V = \sqrt{\frac{2E}{m}}$$